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MASTER OF MILITARY STUDIES

TITLE:

The Sundown of the United States Marine Corps Naval Flight Officer Military
Occupational Specialties

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE
DEGREE OF MASTER OF MILITARY STUDIES

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Executive Summary

Title: The Sundown of the United States Marine Corps Naval Flight Officer Military Occupational Specialties

Author: Major Christopher Floom, United States Marine Corps

Thesis: As the Marine Corps transitions to the single-seat F-35B JSF and the eventual “Sundown” of the F/A-18D and E/A-6B comes to pass, Naval Flight Officers (NFO) need to maintain proficiency in their applicable Military Occupational Specialties (MOS) that will provide them with critical skills to become Unmanned Aerial Systems (UAS) Mission Commander (MC), KC-130 Fire Control Operator (FCO), and as aircrew in light attack fixed-wing platforms.

Discussion: With the number of NFOs in the Marine Corps, a requirement exists to provide clear and expeditious direction and decisions as to the future of these officers. The Marine Corps has highlighted the requirement for NFOs to transition to a new MOS; however, the Marine Corps has failed to provide the required direction or new MOS that would exploit the expertise in the NFO community. By FY2019, the NFO community will cease to exist and there will be numerous Marine Corps Officers with contractual service obligations remaining. This paper will address the options the Marine Corps should investigate in order to provide options for these officers and will discuss the lightly armed aircraft alternative to utilize the NFO.

Conclusion: The United States Marine Corps has invested heavily in NFOs and will continue to do so until the E/A-6B and F/A-18D retire; thus, a number of Marine Corps Officers must select a new MOS. The solution for the Marine Corps is to provide NFOs, both junior and senior, greater chance for selection in the NFO to Naval Aviator transition program, UAS MC, KC-130 FCO, and as a crewmember in a light attack fixed-wing platform. The Marine Corps must act now to keep junior NFOs active in their communities and prove that all NFOs have a future in Marine Corps Aviation.

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Preface

With the departure from the pattern of the EA-6B and F/A-18D, the NFO as it currently stands will no longer exist. I wanted to address the issue that has faced the NFO community since the F-35 has been on the drawing boards that of only one seat in the replacement of all USMC TACAIR platforms. I would like to thank all NFOs and Infantry Officers who completed the survey that was used for this paper. Hopefully this paper will provide some insight to the options that may be available for NFOs who want to continue to pursue their Marine Corps careers. Also, thank you Dr. Gelpi for being my advisor for this paper.

INTRODUCTION

As the Marine Corps transitions to the F-35B Joint Strike Fighter (JSF), the Naval Flight Officer (NFO) Military Occupational Specialty (MOS) will cease to exist. The last F/A-18D Weapons Systems Officer (WSO) and E/A-6B Electronics Warfare Officer (EWO) will complete their training in FY2015 and FY2017, respectively, with the last F/A-18D and E/A-6B squadrons shut down by FY2017 and FY2019, respectively.¹

Junior NFOs will have service obligations remaining as their airframes are decommissioned and they need to have guidance for their future, especially those who want to continue as Marine Corps Officers.

There are several courses of action that need to be available for NFOs to consider: NFO to Naval Aviator, Air Officer (AO)/Forward Air Controller (FAC), Unmanned Aerial Systems (UAS) Mission Commander (MC), KC-130 Fire Control Officer (FCO), Personnel Exchange Program (PEP), Special Education Program (SEP) / Law Education Program (LEP), and Foreign Area Officers (FAO) / Regional Area Officer (RAO). In addition to the possible options for NFOs to select, the Marine Corps should identify aircraft that may be deployed in counterinsurgency operations and permissive environments. As the Marine Corps transitions to the single-seat F-35B JSF and the eventual "Sundown" of the F/A-18D and E/A-6B comes to pass, NFOs need to maintain proficiency in their applicable MOS that will provide them with critical skills to become UAS MC, KC-130 FCO, and as aircrew in light attack fixed-wing platforms.

BACKGROUND

The Initial Operation Capability (IOC) of the F-4 Phantom, A-6 Intruder, and the OV-10 Bronco introduced the requirement for Naval Flight Officers and Aerial

Observers (AO) to function as a crewmember with specified tasks. These aircraft required NFOs/AO to accomplish specific mission sets that pilots could not accomplish exclusively due to the high task loads required throughout assigned missions. The F-4 Phantom, IOC in 1961, required the Radar Intercept Officer to operate the radar for air defense and was used extensively during the Vietnam War by the Marine Corps. The A-6 Intruder, IOC in 1960, required the Bomber/Navigator to utilize the radar and targeting pod to acquire targets with its sensors while the pilot conducted other mission essential tasks. The Marine Corps used the A-6 predominately in Vietnam and Operations DESERT SHIELD/STORM. The E/A-6A required the Electronic Countermeasures Officer (ECMO) to target Surface to Air Radars during the Vietnam War and was subsequently replaced by the four-seat E/A-6B. The OV-10 Bronco, IOC in 1966, utilized the AO for helicopter escort, a Tactical Air Coordinator (Airborne) and general reconnaissance predominately during the Vietnam War and Operations DESERT SHIELD/STORM.² The successes of these aircraft attributed to the creation and implementation of the next generation of Marine Corps aircraft to employ the NFO. The E/A-6B Prowler, IOC in 1971, continued to offer the Marine Corps an inherent Electronic Countermeasure (ECM) platform with increased Suppression of Enemy Air Defense (SEAD) capability and two additional NFOs to complete the four person crew.³ The F/A-18D Hornet, IOC in 1989, “boasted a light- to medium- attack ability that promised a replacement for the Intruder”⁴ and offered the ability to conduct the missions of a FAC(A). Both aircraft were used in Operations DESERT SHIELD/STORM, as well as subsequent conflicts. The E/A-6B and F/A-18D proved that the Marine Corps would

have multiple crewmembers in some tactical jet aircraft until the JSF replaces all Marine Corps tactical jet aircraft.

Marine Corps NFOs commence their aviation training at NAS Pensacola, with other services and countries. Upon completion of this training they are assigned to Fleet Replacement Squadrons (FRS) to undergo further training in their specified platforms. Marine Corps NFOs will continue training at NAS Pensacola until 2015 for WSOs and 2017 for EWOs, due to the transition to the JSF.⁵ Production requirement for WSOs stops in FY2015 due to the transition from the F/A-18 to the JSF by FY2017, whereas EWO production ceases in FY2017 for transition to the JSF by FY2019. The Marine Corps requirements summary for NFO production shows the gradual declination until the eventual discontinuation in production of NFOs in FY 2017 (Figure 1). EWOs and WSOs continue to train throughout their careers in their respective platforms, which provide the Marine Corps with valuable expertise in their fields.

The mission of the E/A-6B is to “support the MAGTF Commander by conducting airborne electronic warfare, day or night, under all weather conditions during expeditionary, joint, or combined operations.”⁶ The Table of Organization (T/O) of an E/A-6B squadron consists of five aircraft, eight pilots, and twenty-one EWOs. The EWO plays a pivotal role in mission success for the E/A-6B community. The basic Program of Instruction (POI) for an EWO requires forty-five weeks of Core Skill Introduction at the FRS, forty-nine weeks of Core Skill Training at the tactical squadron, fifty-three weeks of Mission Skill Training at the tactical squadron conducted concurrently with Core Skill Training, and twenty-seven weeks of Core Skill Plus training conducted at the tactical squadron level. The basic POI for an EWO in the tactical squadron consists of 102

weeks, approximately two years, to train the EWO to become tactically and technically proficient in the E/A-6B.⁷

The Marine Corps requires an EWO to complete sixty-five flights, which require 111.5 hours, and fifty-four simulators, which require thirty-one hours, to complete training. These flights and simulators do not count the requirements of other aircraft to participate in these events, nor do they consider the requirements to maintain proficiency in many events that require a ninety-day currency requirement.⁸ Upon completion of their first tour, most EWOs leave their squadrons as Mission Commanders, with a few as Weapons and Tactics Instructors (WTI). The Marine Corps relies heavily upon EWOs to return to their squadrons after a “B-billet” to bring their expertise from previous squadron tours back to the community to alleviate further training obligations on their squadrons for the returning EWOs.

The mission of the F/A-18D is “support the MAGTF Commander by providing supporting arms coordination, conducting multi-sensor imagery reconnaissance, and destroying surface targets and enemy aircraft day or night under all weather conditions during expeditionary, joint, or combined operations.”⁹ The T/O for an F/A-18D squadron is twelve aircraft, nineteen pilots, and nineteen WSOs. The important distinction between the F/A-18D’s core mission essential task list and the F/A-18 A/C’s is the task to conduct FAC(A) and TAC(A) missions, but with advancements in technology, single seat F/A-18’s are tasked to conduct FAC(A) missions in addition to their core plus mission essential task list.¹⁰

The requirement still exists to train WSOs to be technically and tactically proficient in their mission essential task list, which requires approximately forty-eight

months based on the F/A-18D Core Progression Model.¹¹ According to the September 2009 F/A-18 Training and Readiness Manual, the Marine Corps requires a WSO to complete 120 flights, which require 154.8 hours, and forty-four simulators, which require fifty hours, to complete their training.¹² Similar to their counterparts, WSOs tend to depart their squadrons after their first tour as Mission Commanders and either WTIs or Strike Fighter Tactics Instructors. However, unlike EWOs, WSOs typically depart their squadrons as a FAC(A) providing them with a better understanding of how to employ combined arms with a ground maneuver unit. Again, comparison to the EWO community may be drawn in that the Marine Corps relies heavily upon the return of WSOs to their community to train and enhance the capabilities of the F/A-18D from their prior operations with ground forces.

The F-35 Joint Strike Fighter “combines Hornet multi-role functionality with Harrier basing flexibility, providing the Marine Corps with a low-signature, state-of-the-art aircraft armed with ‘leap-ahead technology.’”¹³ The technological capabilities of the JSF have allowed the pilot to be the sole aircrew in the aircraft to accomplish missions that previously required two to four aircrew. JSF pilots will require extensive pre-flight planning, coordination, and training to execute the missions assigned to the Marine Corps’ Tactical Aircraft (TACAIR) platforms, A/V-8B, E/A-6B, and F/A-18. The Qualitative Assessment (QA) of the USMC Single Seat Forward Air Controller (Airborne) Concept in the F/A-18 A/C and A/V-8B concluded, “the single seat FAC(A) mission is a viable and appropriate mission for Marine aircrew. Should the single seat FAC(A) mission be pursued, every effort must be made to ensure that it is accompanied with the proper training, funding, and assets.”¹⁴ Since the F-35B is still in its infancy, the

Marine Corps needs to carefully evaluate the Mission Essential Task List (METL), training requirements, and staffing goals of the F-35B program to ensure success. The F-35B program will include pilots from various TACAIR communities, but should also assess the requirement to have EWOs and WSOs on staff to assist in training and planning for missions.

SURVEY

With the eventual “Sundown” of the E/A-6B and F/A-18D, the Marine Corps has assessed there is no longer a need for either the 7525 or 7588 MOS. According to Marine Corps Order 1200.7, MOS Manual, officers currently assigned a 7525 or 7588 MOS may retain their primary MOS until attrition or conversion to another MOS.¹⁵ There are many options NFOs may elect to pursue: some MOS exist and others need to be created. One hundred ten NFOs, varying in rank and experience, conducted an online survey, with eighty-three surveys returned (75%) and fifty-three useful surveys (48%).¹⁶ NFOs were asked questions relating to: 1) time in service and grade; 2) current rank; 3) number of deployments; 4) completion of a FAC tour; 5) incentive to remain past contractual obligation; and most importantly, 6) ranking of possible MOS selections. The MOS selections for ranking were: NFO to Naval Aviator transition; permanent Air Officer/FAC; UAS Mission Commander; KC-130J FCO; Personnel Exchange Program; Special Education Program / Law Education Program; Foreign Area Officer / Regional Area Officer; lateral move to another Primary MOS; JSF Instructor Cadre; and as a WSO in a lightly armed fixed-wing aircraft for Counter-Insurgency (COIN) (Figure 2). An analysis of the results provides possible solutions to utilize the NFO and capitalize on their MOS expertise for Manpower and Reserve Affairs.

Infantry officers participated in a separate survey to obtain information the importance of continuity and standardization in an infantry battalion air shop. The infantry officers had experience at varying levels within an infantry unit. The officers were asked: the importance of a need for continuity in the Air Officer Department with a high turnover of Forward Air Controllers in the Battalion (given a one to one and a half year turnover); if there is potential for an aviator to command if they attend Infantry Officer Course, Tactical Air Control Party Course, and Fire Support Coordinator Course; and if an infantry battalion would benefit having a Tactical Air Control Party Instructor on staff for three years. The infantry officer survey provided excellent insight to desires of these officers to have continuity in a battalion and the need for three-year air officer tours.

OPTIONS FOR THE NFO COMMUNITY

Naval Flight Officer to Naval Aviator Transition

The purpose of the Transition/Conversion program is to provide “NA’s and NFO’s with the opportunity to seek either a lateral move to a career broadening aviation military occupational specialty (MOS) or an assignment to a follow-on MOS once their primary MOS (PMOS) has become obsolete.”¹⁷ According to the FY2010 Marine Aviation Plan, the number of NFO to Naval Aviator transition opportunities will increase. Upon analysis of historical data from previous Transition/Conversion results, the availability of NFO to Naval Aviator transitions has been limited to an average of approximately three positions available per fiscal year since 2001.¹⁸ Twenty NFOs (38%) chose as their top choice to transition from NFO to Naval Aviator, with this option as the top choice amongst Major and Captain NFOs, at 47.8% and 36.8% respectively.¹⁹

Transition of NFOs to Naval Aviators would cost the Marine Corps less in the long run, as the NFO already possesses many skills required to aviate an aircraft. It takes approximately twelve months to train an NFO to become a Naval Aviator, as compared with approximately eighteen months to train a Student Naval Aviator. In addition, the NFO will incur a four-year contractual obligation to the Marine Corps upon completion of training.²⁰ The 2010 Marine Aviation Plan has identified a need to increase the number of NFO to Naval Aviator transition opportunities. The Marine Corps needs to increase the opportunities now for NFOs to transition. A longer transition implemented now will prevent a requirement for a rapid increase if the requirement is prolonged until FY2019.

Air Officer

Traditionally, Air Officers and Forward Air Controllers serve a year to two-year rotation in ground units; however, in order to maintain continuity in the unit, aviators should fill these positions for a three-year period. Currently, aviators, both pilots and NFOs, are required to attend a three-week course at either Expeditionary Warfare Training Group (EWTG) Atlantic or EWTG Pacific to obtain the 7502 MOS (Forward Air Controller). Upon completion of the three-week course, the FAC is defined as,

A pilot/NFO certified as a JTAC and qualified per the Marine Corps TACP T&R Manual which coordinates, integrates and directs actions of combat aircraft engaged in support of ground combat operations. Additionally, a FAC is responsible for the integration of all aviation assets and provides required liaison between aviation and ground units.²¹

Upon completion of the three-week course at EWTG Atlantic/Pacific, the FAC is capable of controlling fires without the requirement of a Joint Tactical Air Controller Instructor (JTACI) but cannot create new JTACs.²² The Air Officer is required to implement a training plan for the other 7502s, along with 8002(JTAC) and prospective JTACs, during

their initial training. The Air Officer must coordinate, plan, and conduct events to ensure the unit's personnel completes his required events. In addition, the Air Officer is the infantry unit's lead FAC in the conduct of Marine and Joint Aviation. His knowledge and procedures are subject to annual inspection by the next highest command to ensure JTAC standardization and record keeping are accurate.

The requirement to train Marines in a unit to conduct Close Air Support (CAS) is paramount to the success of enhanced company operations. CAS is defined as fires delivered by aircraft "against hostile targets that are in close proximity to friendly forces and that require detailed integration... with the fire and movement of those forces."²³ General James T. Conway, USMC, Commandant, stated, "air-delivered fires must be accessible by leaders at all levels of the MAGTF, to include the squad leader. He must be as comfortable talking to the crew of an Air Force B-2 as he is a Marine attack helicopter."²⁴ A requirement exists for an Air Officer to train his Tactical Control Air Party (TACP) to avoid the risk of fratricide. Enhanced company operations place a greater emphasis upon the Air Officer to train FACs and JTACs to avoid the risk of fratricide within their individual units. A Tactical Control Air Party (Instructor) (TACP(I)), in an infantry battalion for three years, would create continuity and provide a consistent training base for the battalion to train and evaluate the battalion's JTACs in order to allow them to execute close-in coordination with any platform.

In order to minimize the reduction in readiness, an infantry battalion should have at least one 7502 assigned to the unit for a period of three years. With a 7502 on a battalion's staff for a three-year period, the battalion would be required to invest the time and assets to make him a TACP(I). The battalion could then conduct initial training for

prospective JTACs and not have to rely on a regiment or higher Air Officers. Currently, the requirement for JTAC Evaluators (JTAC(E)) and TACP(I) exists only on Regiment and higher staffs (Figure 3). The readiness of the battalion would be enhanced with a 7502 trained as a TACP(I) on staff for three years.

Ten out of twenty infantry Majors, with Battalion and Regimental staff experience, participated in the survey. Participating officers understood the key role qualified Air Officers and FACs at the Battalion and Regimental level made to their respective units. The officers were asked the importance of retaining an Air Officer on a battalion staff for three years in order to implement a more robust TACP training plan and create additional JTACs for the unit. Additionally, the officers were asked if there is potential for an aviator to command in an infantry battalion and progress in the 0302 MOS if they attended the required courses to become an infantry officer. Seventy-five percent of the replies were positive but only to a limited extent. Sixty percent agreed to allow a 7502 to a command position at the company level. Due to the leadership skills gained by leading Marines in infantry units, a 7502 would need to remain in an infantry unit until they proved they had the required leadership skills to lead in infantry battalions. Eighty-three percent of the officers polled agreed that there is a need for a 7502 to remain on staff for continued training and continuity of efforts within the unit. Some respondents stated further that within three months after a unit returns from deployment, there is a void in the Air Officer section due to follow-on orders. Company-grade aviators are encouraged to return to their specific platforms to maintain qualifications and progress in their career path. If a 7502 chose an Air Officer career path they would sacrifice their projected aviation career path. It is imperative for the Marine Corps to

increase a 7502 tour to three years to allow for greater continuity within an infantry unit allowing these units to increase their instructor base, which will increase the number of JTACs available.

Unmanned Aerial Systems Mission Commander

The MAGTF commander relies on Marine Corps aviation to perform a crucial role in maneuver warfare. Marine Unmanned Aerial Vehicle Squadrons (VMU) has become a key component in this role. The mission of a Marine Corps UAS Squadron is:

Support the MAGTF commander by providing day and night aerial reconnaissance, surveillance, target acquisition (RSTA), indirect fire adjustment, bomb hit assessment (BHA) and support of the rear area security plan during expeditionary operations or joint and combined operations during Visual Meteorological Conditions (VMC).²⁵

The MOS manual currently defines an unmanned aircraft mission commander as, “assigned as an FMOS to qualified Naval Aviators/Naval Flight Officers/Air Command and Control Officers/Low Altitude Air Defense Officers who have successfully completed formal UAV Mission Commander Training.”²⁶ Due to the increased complexity of UAS missions, mission commanders will require better situational awareness of both airborne and surface assets. Mission commanders will need to be trained on constantly evolving tactics, techniques, and procedures for their community’s new innovations and systems.

The current inventory of UASs in the Marine Corps does not compare to the level of systems other services and agencies possess. With procurement of future systems, the Marine Corps must train operators that know how to tactically employ such systems. The T/O of a UAS squadron is five aircraft, five external pilots, thirty-three internal operators, and five mission commanders.²⁷ The Marine Corps’ current inventory of RQ-7B Shadows and RQ-11B Ravens pales in comparison to the Group Four UAS that the

Marine Corps will acquire by FY2016. As the Marine Corps procures these systems, Mission Commanders need to be initially trained as aviators then proceed to their respective UAS fields. However, the Air Force has recognized an increased demand for persistent UAS coverage over the battlefield. Due to the pivotal role the UAS has on the battlefield, the UAS has garnered more attention to how they are employed and who flies them. The Air Force has implemented a “nine-month training program for officers from non-flying backgrounds, including deskbound airmen, military police officers and ‘missiliers’”²⁸ to meet the growing demand of UAS operators. With proper training and simulation, non-aviators possess the ability to pilot UAS, but the increased time it takes a non-aviator to maneuver his UAS and employ versus an aviator could mean the difference between life and death for those supported. The level of sophistication that these systems reach requires the MC to have an aviation background in present and future manned systems. Until the Marine Corps acknowledges the need for an MOS to exist for officer MC, the NFO community should fill the gap and become MC in UAS squadrons.

KC-130J Fire Control Operator

KC-130J Harvest Hawk operators provide a foundation for the tactics, techniques, and procedures that will be utilized for current and future employment. The Harvest Hawk program is new to the Marine Corps and specifically designed for Intelligence, Surveillance, and Reconnaissance (ISR) missions. The Marine Corps could not afford to purchase the USAF AC-130H, or a similar platform; thus with Urgent Universal Needs Statement (UUNS) #08198UB the Marine Corps outlined the future version of the KC-130 for the Marine Corps. The roll-on/off capability of the system gives the KC-130J the ability to be modified expediently and allows for the system to be used in all KC-130J

squadron aircraft. The KC-130J modification attaches the AN/AAQ-30 Target Sight System (TSS) to an external fuel pod; the TSS is currently used as the AH-1Z's targeting system. The KC-130J can be armed with AGM-114P Hellfire missiles, GBU-44 Viper Strike Low Collateral Damage bombs, and the Mk-44 Bushmaster II 30mm Cannon²⁹ (Figure 4). The Harvest Hawk system requires an operator to operate the TSS, input information into the weapon, arm, and shoot the weapon; however, the aircraft commander has to authorize the FCO to shoot the weapons. WSOs are currently filling the role as the FCO and will subsequently see more billets available for this position; however, the Marine Corps must create a primary MOS for FCOs. With numerous opportunities of this system, FCOs have the ability to pave the way for other NFOs to fill these billets and provide insight for the persistent ISR requirement of the Marine Corps.

Lightly Armed Fixed-Wing Aircraft

“On July 6, 1968, a new aircraft arrived at Da Nang with VMO-2... the North American OV-10A Bronco was the result of a call for a lightly armed aircraft capable of operating in the counterinsurgency (COIN) role.”³⁰ A lightly armed fixed-wing aircraft such as the OV-10 or AT-6B should be considered by the Marine Corps to conduct missions in the COIN environment. Lightly armed fixed-wing aircraft are required in Afghanistan and Iraq to limit the number of hours placed on TACAIR. The problem with continuing to fly TACAIR in current areas of operation is that it reduces the available flight hours remaining on the current inventory of fleet aircraft. The F/A-18 Service Life Management Program (SLMP) is designed to manage service life “for each individual aircraft enabling a more comprehensive and efficient approach to aircraft service life preservation.”³¹ Implementation of SLMP, reduction in flight hours of TACAIR in the

COIN environment, and the Harvest Hawk program is a step in the right direction, but a lightly armed aircraft needs to be fielded to bridge the gap to the F-35.

The Harvest Hawk program is predominately a sensor platform, with the ability to engage targets with its multiple weapons systems; however, it does not have the ability to place itself in a position to facilitate control of aircraft as a FAC(A). Test and evaluation is being conducted on the AT-6B to perform missions such as CAS, FAC(A), combat search and rescue, and convoy support. In addition to kinetic operations, the AT-6B can perform non-kinetic missions such as “border security, port security, and counter-narcotics operations; and civil missions such as disaster area reconnaissance, search and rescue, and firefighting.”³² Pilots from various aircraft can man these platforms while WSOs trained as FAC(A)s give the ground commanders more flexibility in their fires plans. The AT-6 is currently in use as a trainer for flight school by the Navy, Marine Corps, and Air Force. Pilots and WSOs can train in a more expeditious manner versus having to complete training in a completely new aircraft. Skilled crews will learn the aircraft more rapidly, which will decrease the time to train resulting in a more efficient product in the operating force subsequently.

Personnel Exchange Program

The Marine Corps must examine closely the current available exchange programs and create more NFO exchanges within the United States and our allies while training resources still exist to train other services in our tactics. Currently, there is one exchange program available for all NFOs, which is available for EWOs at NAS Fallon, Nevada. Conversely, there are numerous billets available for pilots, both internationally and in other U.S. services. There are many platforms NFOs may be employed in other U.S.

services: the USN F/A-18F/G and the USAF F-15E, B-1B, B-52, and AC-130. These mentioned platforms have NFO equivalent officers and can be used to train USMC aircrew in tactics, techniques, and procedures (TTP) they use, and in turn their crews can be trained in the TTPs used by the Marine Corps. The Marine Corps needs to exchange with other services' NFOs and pilots to learn how other services accomplish FAC(A), ISR, and CAS missions before the platforms are gone or TTPs are already established. That the Marine Corps has limited exchange tours for NFOs is unfortunate since there are many services that could use the expertise NFOs provide to their communities and similar platforms.

Special Education Program / Law Education Program

General Petraus wrote, "The most powerful tool any soldier carries is not his weapon but his mind."³³ Special Education Program / Law Education Program (SEP/LEP) are both programs that allow officers to expand their horizons away from their primary MOS. Special Education Program primarily sends officers to Naval Postgraduate School and prepares them to receive a master's degree to enhance the capabilities within the Marine Corps. Law Education Program allows officers to apply to receive a Juris Doctorate and laterally transfer to a primary MOS of Judge Advocate, 4402. Special Education Program / Law Education Program were listed as second choice for Captains in the online survey. The survey results also showed that Captains are interested in pursuing advanced degrees of education and have the ability to do so with these programs. Special Education Program / Law Education Program incur a three-year service obligation for a year of school with a four-year obligation if course work greater than one year is required. Additionally, the programs provide the Marine Corps with

more educated officers and allow the Marine Corps and NFOs the ability to compete with other services as well as their peers in the civilian sector.

Foreign Area Officer / Regional Area Officer

With the growing demand for cultural awareness and understanding, the number of FAOs and RAOs should be increased to foster and improve relationships with nations and cultures with whom U.S. forces currently train and operate. The FAO/RAO program is designed to “identify, select, and train this corps of officers for future assignments to high-level Marine Corps, Joint, or Combined staffs in operations, planning, or intelligence billets; and for duty with the Defense Attaché System.”³⁴ NFOs that have completed FAO/RAO tours are obligated to return to their primary MOS for career progression in that MOS. In addition, junior aviators are advised to avoid becoming a FAO/RAO early in their careers to avoid jeopardizing their flight status. The Marine Corps needs to allow any eligible officer the opportunity to choose this as their career field. Taking an officer out of the FAO/RAO track to continue on their primary MOS career progression is counterproductive. The Marine Corps must keep officers who have completed FAO/RAO training in that career field to have dedicated personnel trained and equipped with the required cultural and language knowledge in their area of expertise. NFOs should be given top priority for selection as a FAO/RAO and continue in that field until they choose to retire or resign from the Marine Corps. Current conflicts illustrate the FAO/RAO is a requirement the Marine Corps needs to increase and the NFO community is one group of officers the Marine Corps can use in this field.

Primary MOS Change

Eventually, with the sundown of the E/A-6B and F/A-18D, NFOs will be required to change their primary MOS. The options currently exist to apply for a change in one's primary MOS, but those options are limited. Most boards that convene are for a secondary MOS and officers are still required to return to their primary MOS for career progression. The Marine Corps must provide NFOs better opportunities to change their primary MOS earlier in their career rather than waiting until FY2019 when the number of NFOs requiring an MOS changes will surge. In addition, the Marine Corps should implement boards in upcoming years to force NFOs to decide their career progression. The options stated previously require immediate implementation, especially with the impending transition to the F-35B.

F-35B Instructor Cadre

With the creation of new systems that require increased mission planning, NFOs can be utilized to assist pilots in mission preparation. The JSF is an impressive aircraft with incredible capabilities.³⁵ The need for an extensive mission-planning cell is paramount to the success of missions assigned to the JSF. The Marine Corps is currently manning the first squadron for the JSF Fleet Replacement Squadron (FRS) with pilots; however, the Marine Corps needs to consider manning it with NFOs as well to assist in development of TTPs. Often a closed-minded approach exists when looking at the development of TTPs; nevertheless, NFOs on staff that have performed tasks that pilots have not conducted can provide guidance to some of these problems that could arise.

NFOs could also be utilized in other roles than solely in the planning process, as an instructor or ground-based crewmember. NFOs could conduct training in the classroom that their specialty resides. WSOs could instruct TTPs for missions that were

conducted in the F/A-18D, specifically FAC(A) and reconnaissance whereas EWOs could instruct on the TTPs to counter integrated air defenses vital to the success of the stealthy JSF. As with UAS, the JSF is equipped with a ground-based system. The NFO could assist the pilot during critical portions of a mission. The NFO would act as a crewmember and conduct non-essential tasks while the pilot conducts the mission essential tasks. Detailed crew coordination, currently conducted in both the E/A-6B and F/A-18D, is essential in the conduct of such missions. Crews are not only required to coordinate within their respective aircraft but also in the conduct of the mission within their section and external agencies. Ground-based systems would rely extensively on a robust communication suite in the air and on the ground to ensure uninterrupted communication. As TTPs and proficiency evolve for the JSF, there would be less emphasis on NFO involvement in the mission. Pilots, who would have more knowledge of the JSF's capabilities, would man the ground-based systems. NFOs will be the first step in the process until JSF squadrons are fully manned.

ANALYSIS

Many NFOs enjoy their current jobs and want to continue to fly their respective aircraft, but some of the NFOs will not remain in the service for twenty years due to lack of career progression, command opportunities, and aircraft to fly in the future. The survey focused on the results from the NFOs that are on the border of being in the service when the E/A-6B and F/A-18D squadrons transition to JSF squadrons. Forty-eight percent of the Majors and 37% of the Captains chose transition to Student Naval Aviators as their top selection. The primary reason for transition to SNA was the opportunity to

continue to fly, a not inconsequential number of NFOs desire an increased monetary benefits enjoyed by pilots.

Many believe that money does not buy happiness, but in the case of aviation it provides a good incentive. The intent of Aviation Continuation Pay (ACP) is to provide a long-term incentive for Marine aviation. Since 2001 WSOs have seen an 83% drop (\$12,000 to \$2,000) in ACP, EWOs have also seen a drop of 58.3% (\$12,000 to \$5,000). Pilots have seen a decrease in ACP as well; F/A-18 pilots have decreased 52% (\$25,000 to \$12,000) and E/A-6B pilots have decreased 60% (\$25,000 to \$10,000). ACP is dependent on the strength of the aviation community, both personnel and assets available. The drop in numbers would lead one to believe that there are plenty of pilots and NFOs available, but according to Marine Online (MOL) approximately 40% of EWOs and 45% of WSOs are in fleet squadrons. The problem is the lack of incentive for NFOs to remain to fill the seats until 2019 when their current platforms are replaced. Sixty-four percent of the surveyed NFOs are not on ACP, some declined ACP due to the difference in pilot to NFO ACP amount. The survey accentuated the fact NFOs enjoy their line of work and would not trade what they do for money; however, the disparaging numbers that are in actual fleet squadrons is disheartening. To bridge the gap until FY2019 ample incentive must exist for NFOs to remain in flying billets longer to maintain strength in the squadrons.

A lightly armed fixed-wing aircraft, OV-10 or AT-6B, or increased numbers of KC-130J Harvest Hawk modifications would benefit the Marine Corps and the NFO program. NFOs showed an interest (Lieutenant Colonels first selection, Majors second selection, and Captains third selection) in a more suitable platform for COIN or

permissive environments. These platforms would be utilized as ISR platforms and have the ability to deliver precise ordnance for low collateral damage during Phase IV operations.³⁶ The issue with platforms such as these is the risk aviators would take if placed in a major combat operation. Anthony Cordesman stated, “the permissive environment that allowed aircraft like the AC-130 to enjoy near freedom of operations over Afghanistan may not exist in future contingencies in the Middle East.”³⁷ Although there is self-protection capability against surface to air threats, lightly armed aircraft should not be employed in non-permissive environments, areas where sophisticated integrated air defense systems are employed. Lightly armed aircraft should only be used during Phase IV (stability operations), civil support (disaster assistance), Foreign Internal Defense (COIN), and Homeland Security and Defense (Border Patrol). Use of these aircraft in current conflicts and in preparation for future conflicts will aid in minimizing the use of high-end aircraft in the COIN environment.

CONCLUSION

NFOs can choose their future career options by selecting existing programs or allow the Marine Corps to determine their future career options. The list of available options is many, some of which will not involve flying again, but NFOs need to understand that they will not fly their current aircraft forever. Legacy aircraft will be replaced by the JSF commencing in FY2012, which gives NFOs a compressed timeline to seek other opportunities within the Marine Corps or other services. The Marine Corps must offer several new options for NFOs and subsequently offer new MOSs to the operating force. The primary MOSs discussed earlier such as permanent Air Officer, UAS Mission Commander, KC-130J FCO, lightly armed aircraft WSO, and permanent

FAO/RAO are all new options for the Marine Corps to consider for future implementation as primary MOSs for NFOs and future manning goals. The profound results from the survey concluded that the majority of the responses were in favor of transition from NFO to naval aviator, followed by KC-130 FCO, and SEP.

A detailed plan must be provided to the NFO community to inform junior and senior NFOs that their time to train, assets allocated, and overall investment is worthwhile for the United States Marine Corps. The first step in this plan is to immediately increase the number of NFO to Naval Aviator transitions available. There is an interest in the NFO community to transition to Naval Aviator and it is argued that the current number of positions allotted to the transition board is unsatisfactory. The allotment of transitions needs to be incrementally increased before it is too late. The second step is to create a primary MOS for aviator only UAS Mission Commanders as a result of the complexity that unmanned systems will achieve in the future. Although the Air Force has produced non-aviator operators, the Marine Corps needs to have aviators, who typically have better airborne situational awareness, as UAS Mission Commanders. The third step is to create a primary MOS as a KC-130J FCO, which WSOs currently fill, but only on a temporary assignment. The KC-130J Harvest Hawk program is no longer temporary and is being used as a Counterinsurgency platform. The requirement exists to have a primary MOS for the KC-130J FCO. The final step in this plan is the Marine Corps' investment in a lightly armed fixed-wing aircraft used for counterinsurgency and permissive environments. Lightly armed fixed-wing aircraft can be utilized to prevent unnecessary flight hours on other aircraft not designed for such missions. Additionally

lightly armed fixed-wing aircraft have the capabilities that most fighters have, but also have the ability to excel in Phase Four operations.

The Marine Corps has invested too much in NFO training and proficiency to let them attrite if no plan is carried out. Therefore, the plan is overdue to be implemented. The Marine Corps must act now to keep junior NFOs active in their communities and prove that all NFOs have a future in Marine Corps Aviation.

Figure 1 USMC Requirements Summary.³⁸

	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17
Student NFO								
WSO	20	17	14	14	11	8	0	0
EWO	16	16	16	16	16	13	13	9
TOTAL	36	33	30	30	27	21	13	9
NFO								
WSO	17	14	11	11	8	5	0	0
EWO	15	15	15	15	12	12	10	6
TOTAL	32	29	26	26	20	17	10	6

Figure 2 NFO Survey Results.³⁹

RANK	NFO to SNA	Air Officer / FAC	UAS MC	KC-130J FCO	PEP	SEP / LEP	FAO / RAO	PMOS Change	JSF Instructor	Light Weight Fixed-Wing Aircraft
All NFOs										
1	20	2	0	1	3	8	6	1	2	10
2	4	5	5	8	7	10	5	2	3	4
3	1	7	7	11	3	7	5	6	3	3
4	4	5	4	7	11	5	5	2	5	5
5	2	7	9	10	7	2	4	3	4	5
6	5	3	12	5	7	3	4	7	6	1
7	4	7	5	3	7	8	6	6	3	4
8	3	7	4	2	1	4	12	7	10	3
9	3	4	4	3	2	4	5	8	6	14
10	7	6	3	3	5	2	1	11	11	4
LTCOL NFOs										
1	2	0	0	0	1	1	1	0	2	3
2	2	2	3	0	0	1	0	0	1	1
3	0	2	2	2	0	1	2	1	0	0
4	0	1	2	2	1	3	0	0	1	0
5	0	0	2	4	2	0	1	0	0	1
6	2	1	0	0	2	1	1	1	2	0
7	1	2	0	0	1	2	2	0	1	1
8	0	1	1	1	0	1	1	4	0	1
9	2	0	0	0	2	0	2	0	2	2
10	1	1	0	1	1	0	0	4	1	1

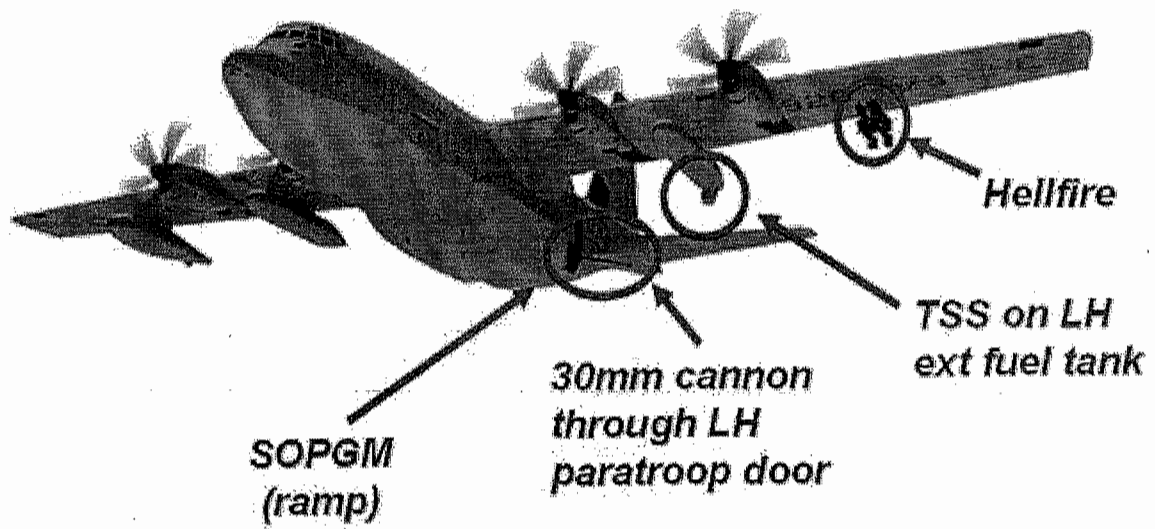
Figure 2 NFO Survey Results (Con't).

RANK	NFO to SNA	Air Officer / FAC	UAS MC	KC- 130J FCO	PEP	SEP / LEP	FAO / RAO	PMOS Change	JSF Instructor	Light Weight Fixed-Wing Aircraft
MAJ NFOs										
1	11	2	0	0	1	3	4	0	0	2
2	1	0	0	7	4	3	3	0	2	3
3	0	5	5	4	2	1	0	2	2	2
4	2	4	0	3	4	1	2	1	2	4
5	1	4	5	2	4	1	1	1	2	2
6	1	1	5	2	3	2	2	3	3	1
7	2	2	2	1	4	6	3	2	1	0
8	2	1	2	2	0	2	6	5	2	1
9	0	2	3	0	0	3	1	5	3	6
10	3	2	1	2	1	1	1	4	6	2
CAPT NFOs										
1	11	2	0	0	1	3	4	0	0	2
2	1	0	0	7	4	3	3	0	2	3
3	0	5	5	4	2	1	0	2	2	2
4	2	4	0	3	4	1	2	1	2	4
5	1	4	5	2	4	1	1	1	2	2
6	1	1	5	2	3	2	2	3	3	1
7	2	2	2	1	4	6	3	2	1	0
8	2	1	2	2	0	2	6	5	2	1
9	0	2	3	0	0	3	1	5	3	6
10	3	2	1	2	1	1	1	4	6	2

Figure 3 JTAC Instructor Requirements.⁴⁰

Instructor Designation	Reg	Div	MEU	MEF	ANGLICO	MARSOC
JTAC(E)	2	2	1	1	3	3
TACP(I)	2	2	1	1	3	3

Figure 4 KC-130J Harvest Hawk.⁴¹



ENDNOTES

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